PHYSICAL REVIEW E

For editorial and subscription correspondence, please see inside front cover
(ISSN: 1063-651X)

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 66, NUMBER 6
PARTS 1 AND 2

CONTENTS

DECEMBER 2002

The Table of Contents is a total listing of Parts 1 and 2.

PART 1

RAPID COMMUNICATIONS

Statistical physics of soft matter

Trapping reactions with randomly moving traps: Exact asymptotic results for compact exploration *(4 pages)* . . . . . 060101(R)
G. Oshanin, O. Bénichou, M. Coppey, and M. Moreau

Governing equations and solutions of anomalous random walk limits *(4 pages)* . . . . . 060102(R)
Mark M. Meerschaert, David A. Benson, Hans-Peter Scheffler, and Peter Becker-Kern

Colloidal dispersions, suspensions, and aggregates

From shear thickening to shear-induced jamming *(3 pages)* . . . . . 060401(R)
Emanuel Bertrand, Jerome Bibette, and Véronique Schmitt

Osmotically driven shape-dependent colloidal separations *(4 pages)* . . . . . 060402(R)
T. G. Mason

Structured and complex fluids

How hard is a colloidal ''hard-sphere'' interaction? *(4 pages)* . . . . . 060501(R)
G. Bryant, S. R. Williams, L. Qian, I. K. Snook, E. Perez, and F. Pincet

Liquid crystals

Dynamics of the nematic phase of a bent-core liquid crystal *(4 pages)* . . . . . 060701(R)
S. Stojadinovic, A. Adorjan, S. Sprunt, H. Sawade, and A. Jakli

Biological physics

Intercalation and buckling instability of DNA linker within locked chromatin fiber *(4 pages)* . . . . . 060901(R)
Jean-Marc Victor, Eli Ben-Haïm, and A. Lesne

REGULAR ARTICLES

Statistical physics of soft matter

Rotating unstable Langevin-type dynamics: Linear and nonlinear mean passage time distributions *(15 pages)* 061101
J. I. Jiménez-Aquino and M. Romero-Bastida

Copyright 2002 by The American Physical Society

(Continued)

1063-651X(200212)66:6:2;1-5

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Fluctuation pressure of a membrane between walls through five loops *(14 pages)* 061102
Boris Kastening
Analytical solution for the Feynman ratchet *(7 pages)* 061103
Karol Pesz, Barbara J. Gabryś, and Stanisław J. Bartkiewicz
Diffusion of epicenters of earthquake aftershocks, Omori's law, and generalized continuous-time random walk models *(24 pages)* 061104
A. Helmstetter and D. Sornette
Exact asymptotic results for persistence in the Sinai model with arbitrary drift *(12 pages)* 061105
Satya N. Majumdar and Alain Comtet
Interplay between jamming and percolation upon random sequential adsorption of competing dimers and monomers *(6 pages)* 061106
Federica Rampf and Ezequiel V. Albano
Ground state and thermal properties of a lattice gas on a cylindrical surface *(7 pages)* 061107
M. Mercedes Calbi, Silvina M. Gatica, Mary J. Bojan, and Milton W. Cole

Equilibrium and linear transport properties of fluids

Rotational dynamics of propane in Na-Y zeolite: A molecular dynamics and quasielastic neutron-scattering study *(8 pages)* 061201
R. Mukhopadhyay, Ahmed Sayeed, S. Mitra, A. V. Anil Kumar, Mala N. Rao, S. Yashonath, and S. L. Chaplot
Nonunique steady states in the disordered harmonic chain *(5 pages)* 061202
Xin Zhou, Hu Chen, and Mitsumasa Iwamoto
Structure of ternary additive hard-sphere fluid mixtures *(10 pages)* 061203
Alexander Malijevský, Anatol Malijevský, Santos B. Yuste, Andrés Santos, and Mariano López de Haro

Granular materials

Thermodynamics and statistical mechanics of frozen systems in inherent states *(10 pages)* 061301
Annalisa Fierro, Mario Nicodemi, and Antonio Coniglio
Velocity fluctuations in electrostatically driven granular media *(4 pages)* 061302
I. S. Aranson and J. S. Olafsen
Statistics of the contact network in frictional and frictionless granular packings *(9 pages)* 061303
Leonardo E. Silbert, Gary S. Grest, and James W. Landry
Cohesion-induced deepening transition of avalanches *(7 pages)* 061304
Chun-Chung Chen
Fluctuation-dissipation relations in driven granular gases *(8 pages)* 061305
A. Puglisi, A. Baldassarri, and V. Loreto

Colloidal dispersions, suspensions, and aggregates

Molecular dynamics simulations of crystallization of hard spheres *(9 pages)* 061401
Igor Volkov, Marek Cieplak, Joel Koplik, and Jayanth R. Banavar
Dynamics of an elongated magnetic droplet in a rotating field *(6 pages)* 061402
A. Cēbers
Heterogeneous structure in colloidal systems: The role of the microion disposition *(11 pages)* 061403
Kenneth S. Schmitz
Attractive forces in sterically stabilized colloidal suspensions: From the effective potential to the phase diagram *(10 pages)* 061404
J. G. Malherbe, C. Regnaut, and S. Amokrane

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Relation between aggregation and phase separation: Three-dimensional Monte Carlo simulations *(5 pages)* 061405
Jean Christophe Gimel, Taco Nicolai, and Dominique Durand

Three eras of micellization *(9 pages)* 061406
J. C. Neu, J. A. Cañizo, and L. L. Bonilla

Depletion potential near curved surfaces *(7 pages)* 061407
Weihua Li and H. R. Ma

Structured and complex fluids

Coiling instabilities of multilamellar tubes *(7 pages)* 061501
C. D. Santangelo and P. Pincus

Dielectric-induced counterion partitioning and its effect on membrane rigidity *(4 pages)* 061502
Jeremy Schmit, Rebecca Menes, and Philip A. Pincus

Nonequilibrium molecular dynamics simulation of shear-induced alignment of amphiphilic model systems *(11 pages)* 061503
Hongxia Guo, Kurt Kremer, and Thomas Soddemann

Probe size effects on the microrheology of associating polymer solutions *(11 pages)* 061504
Qiang Lu and Michael J. Solomon

Crossover between equilibrium and shear-controlled dynamics in sheared liquids *(4 pages)* 061505
L. Angelani, G. Ruocco, F. Sciortino, P. Tartaglia, and F. Zamponi

Films, interfaces, and crystal growth

Eutectic growth under acoustic levitation conditions *(10 pages)* 061601
W. J. Xie, C. D. Cao, Y. J. Lü, and B. Wei

Surface-directed phase separation with off-critical composition: Analytical and numerical results *(10 pages)* 061602
Sanjay Puri and Kurt Binder

Parametric links among Monte Carlo, phase-field, and sharp-interface models of interfacial motion *(8 pages)* 061603
Pu Liu and Mark T. Lusk

Growth model with restricted surface relaxation *(6 pages)* 061604
T. J. da Silva and J. G. Moreira

Monolayers at the air-water interface: Maxwell displacement current and optical second-harmonic generation studies and theoretical treatment *(7 pages)* 061605
A. V. Zakharov and Mitsumasa Iwamoto

Dynamics of viscoelastic membranes *(13 pages)* 061606
Alex J. Levine and F. C. MacKintosh

Dewetting of thin-film polymers *(12 pages)* 061607
F. Saulnier, E. Raphaël, and P.-G. de Gennes

Eutectic colony formation: A phase-field study *(17 pages)* 061608
Mathis Plapp and Alain Karma

Liquid crystals

Dynamic and correlation properties of solid supported smectic-*A* films *(9 pages)* 061701
V. P. Romanov and S. V. Ul'yanov

Computer simulation of polar bent-core molecules *(14 pages)* 061702
Stephen J. Johnston, Robert J. Low, and Maureen P. Neal

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Geometric approach to the Miesowicz coefficients at the region of the crystalline-nematic transition and a universal relation for their ratio *(8 pages)* 061703
M. Simões and S. M. Domiciano
Effect of enantiomeric excess on surface structures and phase sequences in free-standing liquid-crystal films *(6 pages)* 061704
A. Cady, Z. Q. Liu, X. F. Han, S. T. Wang, M. Veum, N. Janarthanan, C. S. Hsu, D. A. Olson, and C. C. Huang
Periodic deformations in nematic liquid crystals *(10 pages)* 061705
A. L. Alexe-Ionescu, G. Barbero, and I. Lelidis
Dynamical coarse-graining of highly fluctuating membranes under shear flow *(14 pages)* 061706
Simon W. Marlow and Peter D. Olmsted
Shear-induced instabilities in layered liquids *(14 pages)* 061707
Günter K. Auernhammer, Helmut R. Brand, and Harald Pleiner
Tilt plane orientation in antiferroelectric liquid crystal cells and the origin of the pretransitional effect *(10 pages)* 061708
P. Rudquist, J. P. F. Lagerwall, J. G. Meier, K. D'havé, and S. T. Lagerwall
Liquid-crystal–solid interface structure at the antiferroelectric-ferroelectric phase transition *(5 pages)* 061709
D. Coleman, S. Bardon, L. Radzihovsky, G. Danner, and N. A. Clark
Semisoft elasticity and director reorientation in stretched sheets of nematic elastomers *(8 pages)* 061710
Sergio Conti, Antonio DeSimone, and Georg Dolzmann

Polymers

Reversible negative thermal expansion of polymer films *(4 pages)* 061801
M. Mukherjee, M. Bhattacharya, M. K. Sanyal, Th. Geue, J. Grenzer, and U. Pietsch
Semiflexible polymer in the cactus approximation *(9 pages)* 061802
M. Pretti
Shear-induced shift of spinodal line in entangled polymer blends *(6 pages)* 061803
M. Criado-Sancho, D. Jou, J. Casas-Vázquez, and L. F. del Castillo

Biological physics

Statistical model for receptor-ligand binding thermodynamics *(13 pages)* 061901
Marc Thilo Figge
Stages of spike time variability during neuronal responses to transient inputs *(9 pages)* 061902
Hugh P. C. Robinson and Annette Harsch
Termination of reentry in an inhomogeneous ring of model cardiac cells *(7 pages)* 061903
Sitabhra Sinha and David J. Christini
Estimating the strength of bone using linear response *(5 pages)* 061904
Gemunu H. Gunaratne
Wave-number spectrum of electroencephalographic signals *(12 pages)* 061905
S. C. O'Connor, P. A. Robinson, and A. K. I. Chiang
Multifractal analysis of DNA walks and trails *(6 pages)* 061906
Alexandre Rosas, Edvaldo Nogueira, Jr., and José F. Fontanari
Stiffening of fluid membranes due to thermal undulations: Density-matrix renormalization-group study *(8 pages)* 061907
Yoshihiro Nishiyama
Systematic derivation of reaction-diffusion equations with distributed delays and relations to fractional reaction-diffusion equations and hyperbolic transport equations: Application to the theory of Neolithic transition *(11 pages)* 061908
Marcel Ovidiu Vlad and John Ross

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Bimodal oscillations in nephron autoregulation *(7 pages)* 061909
O. V. Sosnovtseva, A. N. Pavlov, E. Mosekilde, and N.-H. Holstein-Rathlou

Storage capacity of attractor neural networks with depressing synapses *(5 pages)* 061910
Joaquín J. Torres, Lovorka Pantic, and Hilbert J. Kappen

Design of lattice proteins with explicit solvent *(5 pages)* 061911
G. Salvi, S. Mölbert, and P. De Los Rios

Model of elastic responses of single DNA molecules in collapsing transition *(10 pages)* 061912
Hirofumi Wada, Yoshihiro Murayama, and Masaki Sano

Linear stability analysis of retrieval state in associative memory neural networks of spiking neurons *(20 pages)* 061913
Masahiko Yoshioka

Surface relaxation in protein crystals *(7 pages)* 061914
S. Boutet, I. K. Robinson, Z. W. Hu, B. R. Thomas, and A. A. Chernov

Dynamic phase separation of fluid membranes with rigid inclusions *(6 pages)* 061915
Thomas R. Weikl

Analytical solution for steady-state populations in the self-assembly of microtubules from nucleating sites *(5 pages)* 061916
Karl F. Freed

BRIEF REPORTS

Statistical physics of soft matter

Kinetics of the catalysis-driven aggregation processes *(4 pages)* 062101
Jianhong Ke and Zhenquan Lin

Granular materials

Exponential velocity tails in a driven inelastic Maxwell model *(3 pages)* 062301
T. Antal, Michel Droz, and Adam Lipowski

Biological physics

Reaction-diffusion wave fronts: Multigeneration biological species under climate change *(4 pages)* 062901
Daniel Campos, Joaquim Fort, and Josep Enric Llebot

Correlation differences in heartbeat fluctuations during rest and exercise *(4 pages)* 062902
Roman Karasik, Nir Sapir, Yosef Ashkenazy, Plamen Ch. Ivanov, Itzhak Dvir, Peretz Lavie, and Shlomo Havlin

Evolutionary prisoner's dilemma games with voluntary participation *(4 pages)* 062903
György Szabó and Christoph Hauert

Error threshold transition in the random-energy model *(4 pages)* 062904
Paulo R. A. Campos

Resealing dynamics of a cell membrane after electroporation *(4 pages)* 062905
Martin Bier, Wei Chen, T. R. Gowrishankar, R. Dean Astumian, and Raphael C. Lee

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 66, NUMBER 6 DECEMBER 2002

PART 2

RAPID COMMUNICATIONS

General methods of statistical physics

Metastability and weak mixing in classical long-range many-rotator systems *(4 pages)* . . . . . 065101(R)
Benedito J. C. Cabral and Constantino Tsallis
Cascade-based attacks on complex networks *(4 pages)* . . . . . 065102(R)
Adilson E. Motter and Ying-Cheng Lai
Range-based attack on links in scale-free networks: Are long-range links responsible for the small-world phenomenon? *(4 pages)* . . . . . 065103(R)
Adilson E. Motter, Takashi Nishikawa, and Ying-Cheng Lai

Chaos and pattern formation

Irreversible quantum baker map *(4 pages)* . . . . . 065201(R)
Artur Łoziński, Prot Pakoński, and Karol Życzkowski
Chaos-based secure communications in a large community *(4 pages)* . . . . . 065202(R)
Shihong Wang, Jinyu Kuang, Jinghua Li, Yunlun Luo, Huaping Lu, and Gang Hu

Nonlinear hydrodynamics and turbulence

Spectral theory for the failure of linear control in a nonlinear stochastic system *(4 pages)* . . . . . 065301(R)
Roman O. Grigoriev and Andreas Handel

Plasma physics

Vibrational modes in plasma crystals due to nonlinear temperature distribution in gas discharge plasmas *(3 pages)* . . . . . 065401(R)
V. V. Yaroshenko, G. E. Morfill, and S. V. Vladimirov

REGULAR ARTICLES

General methods of statistical physics

Two-loop critical fluctuation-dissipation ratio for the relaxational dynamics of the $O(N)$ Landau-Ginzburg Hamiltonian *(12 pages)* 066101
Pasquale Calabrese and Andrea Gambassi
Secure key-exchange protocol with an absence of injective functions *(5 pages)* 066102
R. Mislovaty, Y. Perchenok, I. Kanter, and W. Kinzel
Hysteresis phenomena in CO catalytic oxidation system in the presence of inhomogeneities of the catalyst surface *(6 pages)* 066103
Da-yin Hua and Yu-qiang Ma
Variational formulation of nonequilibrium thermodynamics for hydrodynamic pattern formations *(5 pages)* 066104
H.-J. Woo
First-order transition of tethered membranes in three-dimensional space *(5 pages)* 066105
J.-Ph. Kownacki and H. T. Diep
Nondeterministic density classification with diffusive probabilistic cellular automata *(4 pages)* 066106
Henryk Fukś
Oscillations and dynamics in a two-dimensional prey-predator system *(5 pages)* 066107
Małgorzata Kowalik, Adam Lipowski, and Antonio L. Ferreira

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Theory of domain patterns in systems with long-range interactions of Coulomb type *(25 pages)* 066108
C. B. Muratov
Nonequilibrium velocity distributions in liquids: Systems under shear *(8 pages)* 066109
T. Croteau and D. Ronis
Cluster Monte Carlo simulation of the transverse Ising model *(8 pages)* 066110
Henk W. J. Blöte and Youjin Deng
Dynamics of ballistic annihilation *(14 pages)* 066111
Jarosław Piasecki, Emmanuel Trizac, and Michel Droz
Kinks of arbitrary width *(6 pages)* 066112
T. Dobrowolski
Relaxation and overlap-probability function in the spherical and mean-spherical models *(8 pages)* 066113
Nicola Fusco and Marco Zannetti
Modulated scale-free network in Euclidean space *(4 pages)* 066114
S. S. Manna and Parongama Sen
Numerical study of the development of bulk scale-free structures upon growth of self-affine aggregates *(8 pages)* 066115
Federico Romá, Claudio M. Horowitz, and Ezequiel V. Albano
Microstructure and velocity of field-driven solid-on-solid interfaces: Analytic approximations and numerical results *(12 pages)* 066116
Per Arne Rikvold and M. Kolesik
Phase-field model for front propagation in a temperature gradient: Selection and competition between the correlation and the thermal lengths *(11 pages)* 066117
V. Popa-Nita and P. Oswald
Kang-Redner small-mass anomaly in cluster-cluster aggregation *(11 pages)* 066118
Supriya Krishnamurthy, R. Rajesh, and Oleg Zaboronski
Quantum hydrodynamic equations and quantum-hierarchy decoupling scheme *(21 pages)* 066119
F. A. Buot, Y. Jiang, and A. I. Fedoseyev
Stable spiral structures and their interaction in two-dimensional excitable media *(6 pages)* 066120
Roman M. Zaritski and Arkady M. Pertsov
General formalism for inhomogeneous random graphs *(6 pages)* 066121
Bo Söderberg
Quasistatic brittle fracture in inhomogeneous media and iterated conformal maps: Modes I, II, and III *(11 pages)* 066122
Felipe Barra, Anders Levermann, and Itamar Procaccia
Diffusion of the magnetization profile in the *XX* model *(7 pages)* 066123
Yoshiko Ogata
Products of random matrices *(5 pages)* 066124
A. D. Jackson, B. Lautrup, P. Johansen, and M. Nielsen
Duality relations for elastic constants of the classical Gaussian core model *(6 pages)* 066125
Frank H. Stillinger
Statistical mechanics of lossy data compression using a nonmonotonic perceptron *(8 pages)* 066126
Tadaaki Hosaka, Yoshiyuki Kabashima, and Hidetoshi Nishimori
Stability of shortest paths in complex networks with random edge weights *(8 pages)* 066127
Jae Dong Noh and Heiko Rieger
Approximation for directed percolation in $d=1+1$ *(4 pages)* 066128
Clément Sire
Critical temperature estimates for higher-spin Ising and Potts models *(5 pages)* 066129
James L. Monroe

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Analytical approximation of the two-dimensional percolation threshold for fields of overlapping ellipses *(8 pages)* 066130
Y.-B. Yi and A. M. Sastry
Polygonal billiards and transport: Diffusion and heat conduction *(15 pages)* 066131
Daniel Alonso, A. Ruiz, and I. de Vega
Paradoxical motion of a single Brownian particle: Absolute negative mobility *(14 pages)* 066132
Ralf Eichhorn, Peter Reimann, and Peter Hänggi
Local variational principle *(19 pages)* 066133
Cristian Predescu
Percolation in models of thin film depositions *(4 pages)* 066134
N. I. Lebovka, S. S. Manna, S. Tarafdar, and N. Teslenko
Mutual learning in a tree parity machine and its application to cryptography *(13 pages)* 066135
Michal Rosen-Zvi, Einat Klein, Ido Kanter, and Wolfgang Kinzel
Cluster approximation solution of a two-species annihilation model *(5 pages)* 066136
F. Tabatabaee and A. Aghamohammadi
Finite-size effects of avalanche dynamics *(15 pages)* 066137
Christian W. Eurich, J. Michael Herrmann, and Udo A. Ernst

Chaos and pattern formation

Generalized correlated states in a ring of coupled nonlinear oscillators with a local injection *(6 pages)* 066201
Y. Chembo Kouomou and P. Woafo
Front instabilities in a forced oscillatory medium with global coupling *(6 pages)* 066202
D. Battogtokh
Master equation approach to the conjugate pairing rule of Lyapunov spectra for many-particle thermostated systems *(11 pages)* 066203
Tooru Taniguchi and Gary P. Morriss
Front and pulse solutions for the complex Ginzburg-Landau equation with higher-order terms *(8 pages)* 066204
Huiping Tian, Zhonghao Li, Jinping Tian, and Guosheng Zhou
Characterization of the stretched-exponential trap-time distributions in one-dimensional coupled map lattices *(8 pages)* 066205
S. I. Simdyankin, Normand Mousseau, and E. R. Hunt
Autocatalytic model of oscillatory zoning in experimentally grown $(Ba,Sr)SO_4$ solid solution *(12 pages)* 066206
Sergei Katsev and Ivan L'Heureux
Statistics of finite-time Lyapunov exponents in a random time-dependent potential *(11 pages)* 066207
H. Schomerus and M. Titov
Excitable media in open and closed chaotic flows *(12 pages)* 066208
Zoltán Neufeld, Cristóbal López, Emilio Hernández-García, and Oreste Piro
Signature of on-off intermittency in measured signals *(12 pages)* 066209
Chiara Toniolo, Antonello Provenzale, and Edward A. Spiegel
Quantum manifestations of classical periodic orbits in a square billiard: Formation of vortex lattices *(6 pages)* 066210
Y. F. Chen, K. F. Huang, and Y. P. Lan
Wave chaos in the elastic disk *(12 pages)* 066211
Niels Sondergaard and Gregor Tanner
Two-dimensional maps at the edge of chaos: Numerical results for the Henon map *(4 pages)* 066212
Ugur Tirnakli
Pinning stationary planar fronts in diffusion-convection-reaction systems *(13 pages)* 066213
Moshe Sheintuch, Yelena Smagina, and Olga Nekhamkina
On-off intermittency and interminglediike basins in a granular medium *(4 pages)* 066214
Malte Schmick, Eric Goles, and Mario Markus

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Low symmetry patterns on magnetic fluids *(7 pages)* 066215
René Friedrichs
Time-modulated oscillatory structures in phase-separating reactive mixtures *(7 pages)* 066216
Singo Sugiura, Tohru Okuzono, and Takao Ohta
Fluctuation formula for nonreversible dynamics in the thermostated Lorentz gas *(4 pages)* 066217
M. Dolowschiák and Z. Kovács
Dynamics of ''leaking'' Hamiltonian systems *(6 pages)* 066218
Judit Schneider, Tamás Tél, and Zoltán Neufeld

Nonlinear hydrodynamics and turbulence

Single-bubble sonoluminescence from noble gas mixtures *(4 pages)* 066301
J. da Graça and H. Kojima
Numerical simulations of the evolution of Taylor cells from a growing boundary layer on the inner cylinder of a high radius ratio Taylor-Couette system *(5 pages)* 066302
W. M. J. Batten, N. W. Bressloff, and S. R. Turnock
Realizability of stationary spherically symmetric transonic accretion *(4 pages)* 066303
Arnab K. Ray and J. K. Bhattacharjee
Venusian ''hot spots'': Physical phenomenon and its quantification *(11 pages)* 066304
V. P. Goncharov, V. M. Gryanik, and V. I. Pavlov
Formation of large-scale semiorganized structures in turbulent convection *(15 pages)* 066305
Tov Elperin, Nathan Kleeorin, Igor Rogachevskii, and Sergej Zilitinkevich
Large-scale spiral structures in turbulent thermal convection between two vertical plates *(8 pages)* 066306
Minghao Wang, Song Fu, and Guanghua Zhang
Lagrangian statistics and temporal intermittency in a shell model of turbulence *(4 pages)* 066307
G. Boffetta, F. De Lillo, and S. Musacchio
Weak fountains in a stratified fluid *(10 pages)* 066308
Wenxian Lin and S. W. Armfield
Scenarios for the onset of convection close to the critical point *(4 pages)* 066309
Laurence El Khouri and Pierre Carlès
Stochastic analysis of a non-normal dynamical system mimicking a laminar-to-turbulent subcritical transition *(6 pages)* 066310
Sergei Fedotov, Irina Bashkirtseva, and Lev Ryashko

Plasma physics

Gas heating in low-pressure microwave argon discharges *(10 pages)* 066401
A. Palmero, J. Cotrino, C. Lao, and A. R. González-Elipe
Relativistic electron generation in interactions of a 30 TW laser pulse with a thin foil target *(8 pages)* 066402
G. Malka, M. M. Aleonard, J. F. Chemin, G. Claverie, M. R. Harston, J. N. Scheurer, V. Tikhonchuk, S. Fritzler, V. Malka, P. Balcou, G. Grillon, S. Moustaizis, L. Notebaert, E. Lefebvre, and N. Cochet
Experimental and theoretical Stark broadening studies of the hydrogen Paschen β line *(11 pages)* 066403
T. Wujec, W. Olchawa, J. Halenka, and J. Musielok
Spectroscopy of heliumlike argon resonance and satellite lines for plasma temperature diagnostics *(9 pages)* 066404
C. Biedermann, R. Radtke, and K. B. Fournier
Hydrodynamic flow of ions and atoms in partially ionized plasmas *(12 pages)* 066405
R. A. Nemirovsky, D. R. Fredkin, and A. Ron
Laser-generated plasma plume expansion: Combined continuous-microscopic modeling *(12 pages)* 066406
Tatiana E. Itina, Jörg Hermann, Philippe Delaporte, and Marc Sentis

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 66, NUMBER 6** **DECEMBER 2002**

Temperature-dependent pseudopotential between two pointlike electrical charges *(9 pages)* 066407
Marie-Madeleine Gombert
Metamorphosis of plasma turbulence–shear-flow dynamics through a transcritical bifurcation *(9 pages)* 066408
R. Ball, R. L. Dewar, and H. Sugama
Temporal evolution of drift Alfvén waves and instabilities in an inhomogeneous plasma with homogeneous shear flow *(12 pages)* 066409
Vladimir S. Mikhailenko, Vladimir V. Mikhailenko, Martin F. Heyn, and Swadesh M. Mahajan
Transition from Townsend to glow discharge: Subcritical, mixed, or supercritical characteristics *(12 pages)* 066410
Danijela D. Šijačić and Ute Ebert
Electron energy distributions and anomalous skin depth effects in high-plasma-density inductively coupled discharges *(15 pages)* 066411
Alex V. Vasenkov and Mark J. Kushner
Time-resolved plasma spectroscopy of thin foils heated by a relativistic-intensity short-pulse laser *(10 pages)* 066412
P. Audebert, R. Shepherd, K. B. Fournier, O. Peyrusse, D. Price, R. W. Lee, P. Springer, J.-C. Gauthier, and L. Klein
Complex atomic spectral line shapes in the presence of an external magnetic field *(12 pages)* 066413
M. L. Adams, R. W. Lee, H. A. Scott, H. K. Chung, and L. Klein
Influence of the electron distribution function shape on nonlocal electron heat transport in laser-heated plasmas *(5 pages)* 066414
F. Alouani Bibi and J-P. Matte
Fluid modeling of the laser ablation depth as a function of the pulse duration for conductors *(7 pages)* 066415
S. Laville, F. Vidal, T. W. Johnston, O. Barthélemy, M. Chaker, B. Le Drogoff, J. Margot, and M. Sabsabi

Physics of beams

Subluminous phase velocity of a focused laser beam and vacuum laser acceleration *(4 pages)* 066501
J. Pang, Y. K. Ho, X. Q. Yuan, N. Cao, Q. Kong, P. X. Wang, L. Shao, E. H. Esarey, and A. M. Sessler
Generation of single-frequency coherent transition radiation by a prebunched electron beam traversing a vacuum beam tunnel in a periodic medium *(11 pages)* 066502
Paul D. Coleman, Maytee Lerttamrab, and Ju Gao

Classical physics, including nonlinear media and photonic materials

Induced modulation instability of partially spatially incoherent light with varying perturbation periods *(5 pages)* 066601
Zhigang Chen, Jill Klinger, and Demetrios N. Christodoulides
Existence of multibreathers in chains of coupled one-dimensional Hamiltonian oscillators *(8 pages)* 066602
Vassilis Koukouloyannis and Simos Ichtiaroglou
Discrete kink dynamics in hydrogen-bonded chains: The one-component model *(13 pages)* 066603
V. M. Karpan, Y. Zolotaryuk, P. L. Christiansen, and A. V. Zolotaryuk
Hybrid discrete solitons *(5 pages)* 066604
T. Pertsch, U. Peschel, and F. Lederer
Noether's theorem and Lie symmetries for time-dependent Hamilton-Lagrange systems *(12 pages)* 066605
Jürgen Struckmeier and Claus Riedel
Inverse-problem approach to designing photonic crystals for cavity QED experiments *(12 pages)* 066606
J. M. Geremia, Jon Williams, and Hideo Mabuchi
Path-averaged optical soliton in double-periodic dispersion-managed systems *(6 pages)* 066607
Sergei B. Medvedev, Olga V. Shtyrina, Semen L. Musher, and Michail P. Fedoruk

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 66, NUMBER 6 DECEMBER 2002

Adiabatic theorem and continuous coupled-mode theory for efficient taper transitions in photonic crystals *(15 pages)* 066608
Steven G. Johnson, Peter Bienstman, M. A. Skorobogatiy, Mihai Ibanescu, Elefterios Lidorikis, and J. D. Joannopoulos

Influence of stochasticity on multiple four-wave-mixing processes in an optical fiber *(8 pages)* 066609
Bhaskar Khubchandani, Parvez N. Guzdar, and Rajarshi Roy

Composite solitons and two-pulse generation in passively mode-locked lasers modeled by the complex quintic Swift-Hohenberg equation *(10 pages)* 066610
J. M. Soto-Crespo and Nail Akhmediev

Ring dark solitary waves: Experiment versus theory *(7 pages)* 066611
A. Dreischuh, D. Neshev, G. G. Paulus, F. Grasbon, and H. Walther

Alternative paradigm for physical computing *(4 pages)* 066612
Ian Appelbaum, J. D. Joannopoulos, and V. Narayanamurti

Precursor forms of cavity solitons in nonlinear semiconductor microresonators *(10 pages)* 066613
Isabelle Ganne, Gintas Slekys, Isabelle Sagnes, and Robert Kuszelewicz

Field statistics of two vectorially superposed wave populations *(9 pages)* 066614
Iver H. Cairns, P. A. Robinson, and P. Das

Generic features of modulational instability in nonlocal Kerr media *(13 pages)* 066615
John Wyller, Wieslaw Krolikowski, Ole Bang, and Jens Juul Rasmussen

Computational physics

Minimum description length neural networks for time series prediction *(12 pages)* 066701
Michael Small and C. K. Tse

Range-dependent random graphs and their application to modeling large small-world Proteome datasets *(7 pages)* 066702
Peter Grindrod

Improved Monte Carlo sampling in a real space approach to the crystallographic phase problem *(3 pages)* 066703
Xiangan Liu and W. P. Su

Statistical mechanics of the Bayesian image restoration under spatially correlated noise *(8 pages)* 066704
Jun Tsuzurugi and Masato Okada

Transient behavior in single-file systems *(16 pages)* 066705
S. V. Nedea, A. P. J. Jansen, J. J. Lukkien, and P. A. J. Hilbers

Exact and efficient discrete random walk method for time-dependent two-dimensional environments *(10 pages)* 066706
J. Asikainen, J. Heinonen, and T. Ala-Nissila

BRIEF REPORTS

General methods of statistical physics

Pinwheel-like structures resulting from interaction of plane pulses of excitation *(4 pages)* 067101
Jakub Sielewiesiuk and Jerzy Górecki

Stationary and nonstationary properties of evolving networks with preferential linkage *(4 pages)* 067102
W. Jeżewski

From gene families and genera to incomes and internet file sizes: Why power laws are so common in nature *(4 pages)* 067103
William J. Reed and Barry D. Hughes

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 66, NUMBER 6 DECEMBER 2002

Chaos and pattern formation

Non-normality and the localized control of extended systems *(4 pages)* 067201
Roman O. Grigoriev and Andreas Handel

Plasma physics

Electrostatic instabilities in current-carrying magnetoplasmas with equilibrium density and ion velocity gradients *(3 pages)* 067401
P. K. Shukla, G. Sorasio, and L. Stenflo

Classical physics, including nonlinear media and photonic materials

Resonant interaction of modulational instability with a periodic soliton in the Davey-Stewartson equation *(4 pages)* 067601
Masayoshi Tajiri, Hiroyuki Miura, and Takahito Arai
Nonlinearity measurements of thin films by third-harmonic-generation microscopy *(4 pages)* 067602
R. Barille, L. Canioni, L. Sarger, and G. Rivoire
Goos-Hänchen shift in negatively refractive media *(3 pages)* 067603
P. R. Berman
Anomalous delay in wave propagation and tunneling: A transition-elements analysis of the traversal time *(4 pages)* 067604
A. Agresti, P. Sandri, C. Ranfagni, A. Ranfagni, and R. Ruggeri

ERRATA

Corrected Article: Depinning transition of a driven interface in the random-field Ising model around the upper critical dimension [Phys. Rev. E **66**, 026127 (2002)] *(7 pages)* . . . . . 069901(E)
L. Roters, S. Lübeck, and K. D. Usadel
Erratum: Pattern formation induced by nonequilibrium global alternation of dynamics [Phys. Rev. E **66**, 036216 (2002)] *(1 page)* . . . . . 069902(E)
J. Buceta, Katja Lindenberg, and J. M. R. Parrondo
Publisher's Note: Context-tree modeling of observed symbolic dynamics [Phys. Rev. E **66**, 056209 (2002)] *(1 page)* . . . . . 069903(E)
Matthew B. Kennel and Alistair I. Mees

Selected Abstracts From Other Physical Review Journals i

Cumulative Author Index ii